REMARKS

By this Amendment, Applicants amend the specification at page 27 to correct a minor typographical error. Applicants submit that no new matter is introduced by this amendment.

In the Office Action ("OA"), the Examiner indicated that claims 6-12 and 14-19 are allowed. Applicants thank the Examiner for indicating allowable subject matter in the case.

Additionally, the Examiner rejected claims 2, 3, and 5 under 35 U.S.C. § 103(a) as unpatentable over Johnson, U.S. Patent No. 5,638,300 ("Johnson I") or Johnson, U.S. Patent No. 5,907,819 ("Johnson II") in view of Kobayashi, U.S. Patent No. 5,233,544 ("Kobayashi"). In response, Applicants respectfully submit that a *prima facie* case of obviousness has not been established.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03, ed. 8, rev. 1 (Feb. 2003) (quoting *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970)). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Third, there must be a reasonable expectation of success. M.P.E.P. § 2143 at 2100-122 to 127.

Claim 2 is directed to a swing measurement method for measuring a swing behavior during a swing with an impact implement grasped on a grip portion thereof comprising a combination of elements including, *inter alia*, "fixing a three dimensional magnetic sensor to the grip portion of the impact implement ... wherein: the three dimensional magnetic sensor fixed to the grip portion has three mutually orthogonal axes for sensing; one direction of an axis from among the three mutually orthogonal axes being aligned with a direction of an axis of a shaft of

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

the golf club; and one direction of an axis from among the other two axes being aligned with an impact direction of the golf club."

Johnson I and Johnson II are directed to golf swing analysis systems. However, neither Johnson I nor Johnson II discloses anything about aligning one axis of a sensor with the axial direction of the shaft of a golf club and then aligning either of the remaining two axes with the impact direction as claimed. Johnson I and Johnson II disclose attaching a sensor 20, but they fail to disclose at least aligning one axis of the sensor with the axial direction of the shaft of a golf club and aligning either of the remaining two axes with the impact direction, as claimed. Johnson I, Figs. 5A, 5B; Johnson II, Figs. 5A, 5B. In fact, the Examiner admitted that neither Johnson I nor Johnson II teach at least these claim elements. (OA at 3.)

Nonetheless, the Examiner alleged that Kobayashi teaches a swing measurement method comprising aligning acceleration sensors to coincide with an axis of the shaft and aligning acceleration sensors at right angle to an axis of the shaft. (OA at 3-4.) From this, the Examiner concluded that it would have been obvious "to align the sensor's magnetic axes of Johnson's [sensor] using [the] alignment method, as taught by Kobayashi, to come up with a faster and more accurate method for measuring a golf swing behavior thus [improving] golf swing technique and [attracting] more golf players." (OA at 4.) Contrary to the Examiner's allegation, Applicants submit that Kobayashi fails to cure the deficiencies of Johnson I and II.

Kobayashi is directed to a swing analysis system. Kobayashi discloses that the system comprises a plurality of acceleration sensors 18, 20, and 26 which are connected to an analyzing control unit 32. Kobayashi, Fig. 2. The acceleration sensors are attached to the shaft of a golf club. Specifically, acceleration sensors 18 and 20 are arranged to detect acceleration in the direction of the axis of the shaft and acceleration sensor 26 is arranged to detect acceleration at a

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

right angle to the axis of the shaft. Kobayashi, col. 3, ll. 30-44. In other words, Kobayashi teaches attaching **multiple acceleration sensors** in which each measures acceleration **in one dimension**. Therefore, Kobayashi fails to teach or suggest at least, "fixing **a three dimensional magnetic sensor** to the grip portion of the impact implement ... wherein: the three dimensional magnetic sensor fixed to the grip portion has three mutually orthogonal axes for sensing; **one direction of an axis from among the three mutually orthogonal axes being aligned with a direction of an axis of a shaft of the golf club; and one direction of an axis from among the other two axes being aligned with an impact direction of the golf club,**" as recited in claim 2. Thus, Kobayashi fails to cure the deficiencies of Johnson I or II.

Moreover, if the Kobayashi method was properly combinable with Johnson I or II (which Applicants dispute), one skilled in the art would not have been motivated to align the sensor of Johnson I or II as recited in the claims. As mentioned above, Kobayashi only discloses attaching **multiple acceleration sensors which measures one direction** not a three dimensional magnetic sensor. Thus, if Kobayashi were to be combined with Johnson I or II, one skilled in the art might arguably only have been motivated to attach multiple acceleration sensors, not to rearrange the sensors of Johnson I or II. Therefore, Johnson I, Johnson II, and Kobayashi, when taken in combination, fail to teach or suggest at least "fixing a three dimensional magnetic sensor to the grip portion of the impact implement ... wherein: the three dimensional magnetic sensor fixed to the grip portion has three mutually orthogonal axes for sensing; one direction of an axis from among the three mutually orthogonal axes being aligned with a direction of an axis of a shaft of the golf club; and one direction of an axis from among the other two axes being aligned with an impact direction of the golf club," as recited in claim 2.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Moreover, Applicants disagree with the Examiner that it would have been obvious "to align the sensor's magnetic axes of Johnson's [sensor] using [the] alignment method, as taught by Kobayashi, to come up with a faster and more accurate method for measuring a golf swing behavior thus [improving] golf swing technique and [attracting] more golf players." (OA at 4.) Since the acceleration sensors used in Kobayashi are attached to the golf club shaft, the behavior of the golf club shaft is measured in a fixed coordinate system on the golf club shaft, in other words, in a moving coordinate system with reference to the golf club shaft which moves during golf swing. However, rotational motion which causes the front face to open or close is generated about the golf club shaft when a golfer actually swings the golf club. Therefore, even if the acceleration sensor is attached to the golf club shaft oriented in the impact direction, the orientation of the acceleration sensor is deviated from the impact direction during the golf swing and the acceleration of the golf club shaft in the impact direction cannot be measured.

Therefore, Kobayashi measures based on an assumed state in which the golf club shaft is not rotated; that is, the rotation of the golf club shaft about its axis is fixed (or is not taken into account). Kobayashi, Figs. 4, 5, 9, 10 and 14. However, when a golfer swings a golf club, the shaft of the golf club rotates about its axis which causes the front face to open or close as described above. Therefore, it is not possible to apply the disclosure of Kobayashi in which the golf swing is measured based on an assumed state in which the rotation about the golf club shaft is fixed, to Johnson I or II which measures the golf swing of a golfer accompanied by the rotational motion described above.

As described in Johnson I, sensors 6 and 20 used to detect magnetic fields formed by radiation source 32 are provided outside apart from the golf club shaft. Johnson I, col. 3, ll. 63-67, Figs. 1 and 2. In other words, sensors 6 and 20 detect the magnetic fields formed based on

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

the position of stationary radiation source 32 spaced apart from the golf club shaft which is moving during the golfer's golf swing and on the direction set by radiation source 32, thus measuring the coordinate position and direction of the golf club shaft. Accordingly, the rotational motion may be measured.

In contrast, the acceleration sensors of Kobayashi measure acceleration in a moving coordinate system fixed to the moving golf club shaft. Thus, because of the difference in the measurement that both the sensors inherently have, the measurement by Kobayashi assumes the state in which the rotation of the golf club shaft about its axis is not taken into account as described above, whereas Johnson I and II do not require such an assumption. Accordingly, one skilled in the art would not have been motivated to combine Kobayashi with Johnson I or II.

Furthermore, Kobayashi discloses attaching acceleration sensor 26 to the golf club shaft. Kobayashi, Fig. 2. Sensor 26 is not attached to the grip portion but at a distance of "l" from the grip portion as is seen from Fig. 4 and equation (3). Kobayashi, col. 4, l. 31. This is because if acceleration sensor 26 were to be attached to the grip portion, the angle of the translational motion of the golf club shaft cannot be determined due to a distance "l" which is zero. Accordingly, one skilled in the art would not have been motivated to combine Kobayashi with Johnson I or II.

Moreover, the magnetic sensors used in Johnson I or II each determine the position in the magnetic field based on the magnitude of the electromotive force generated in the magnetic field. On the other hand, with an acceleration sensor, the acceleration measurements are integrated twice using the initial condition, and the positional accuracy is thus fairly reduced. Therefore, those skilled in the art generally do not use an acceleration sensor for the positional measurement. As such, Kobayashi uses an acceleration sensor for determining the angle in the

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

translational motion in a particular state in which the rotation of the golf club shaft about its axis is fixed as described above. Accordingly, one skilled in the art would not have been motivated to combine Kobayashi with Johnson I or II.

Hence, Johnson I, Johnson II, and Kobayashi, when taken alone or in combination, fail to teach or suggest all the elements of claim 2. Accordingly, a *prima facie* case of obviousness has not been established. For at least this reason, claim 2 is allowable.

Claims 3 and 5 are allowable at least due to their dependence from allowable claim 2. "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." M.P.E.P. § 2143.03 at 2100-126 (citing *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)).

Furthermore, the Examiner alleged that "[i]t is obvious to place a sensor at certain desired parts of the golf club to measure it swing." (OA at 4.) However, the Examiner did not provide any evidentiary support for this allegation. Thus, the Examiner's allegation is improper because the only references cited, Johnson I, Johnson II, and Kobayashi, fail to teach or suggest this element.

Moreover, it appears that the Examiner may be attempting to take "Official Notice" to allege that certain elements of Applicants' claimed invention are "well known" in the art. Since the record is unclear, Applicants request that the Examiner clarify the arguments presented in the rejection by further explaining this statement.

To the extent that the Examiner is, in fact, relying on taking "Official Notice" in stating these conclusions, the Examiner is respectfully reminded of the provisions of M.P.E.P. § 2144.03, the procedures set forth in the Memorandum by Stephen G. Kunin, Deputy Commissioner for Patent Examination Policy dated February 21, 2002, and the precedents

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

provided in *Dickinson v. Zurko*, 527 U.S. 150, 50 U.S.P.Q.2d 1930 (1999) and *In re Ahlert*, 424 F.2d, 1088, 1091, 165 U.S.P.Q. 418, 420 (CCPA 1970). An "Official Notice" rejection is improper unless the facts asserted are well-known or common knowledge in the art, and capable of instant and unquestionable demonstration as being well-known. Further, any facts asserted as well-known should serve only to "fill in the gaps" in an insubstantial manner. It is never appropriate to rely solely on "common knowledge" without evidentiary support in the record as the principal evidence upon which a rejection is based.

Applicants submit, in view of these provisions, that placing a sensor at certain desired parts of the golf club to measure its swing, as set forth in the claims, is not unquestionably well-known, and the Examiner has failed to demonstrate such. Further, considering the assertions on the record, it appears the Examiner is attempting to improperly rely on "Official Notice" as the basis upon which to justify the rejection. Accordingly, Applicants traverse the "Official Notice" taken and request that the Examiner withdraw the rejection and timely allow the pending claims. However, if the Examiner maintains his position that the pending claims are not allowable, Applicants request that the Examiner cite a competent prior art reference in substantiation of these unsupported conclusions and set forth a proper rejection based on factual evidentiary support that is made of record.

In view of the foregoing, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: February 24, 2004

By: _____
Bryan S. Latham
Reg. No. 49,085

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com